

ABSTRACT

A heat transfer system includes an evaporator, a condenser having a vapor inlet and a liquid outlet, a vapor line providing fluid communication between a vapor outlet of the evaporator and the vapor inlet, and a liquid return line providing fluid communication between the liquid outlet and a liquid inlet entering the evaporator. The evaporator includes a heated wall, a liquid barrier wall containing working fluid, a primary wick positioned between the heated wall and the inner side of the liquid barrier wall, a vapor removal channel located at an interface between the primary wick and the heated wall, and a liquid flow channel located between the liquid barrier wall and the primary wick. The working fluid flows only along the inner side of the liquid barrier wall. The vapor removal channels extend to the vapor outlet and the liquid flow channel receives liquid from the liquid inlet.